5-30-1949

Handwritten Notes for Minsky's PhD Thesis without title

Hyman P. Minsky Ph.D.

for firm

$\underline{I\sigma} = \underline{\Delta W + p_I I}$

$\sigma = \dfrac{\Delta W}{I} + p_I$

$I\sigma = \underline{p_2 q_2 - p_1 q_1} = \underline{\Delta\text{ costs} + \text{profit}}$

$I\sigma = \Delta R = \Delta\text{ Receipts} - \Delta\text{ costs}.$

$\Delta\text{ costs} = \Delta W + p_I.$

$I\sigma = \Delta W + p_I I + M.$

$$\boxed{\sigma = \frac{\Delta W}{I} + p_I + M.}$$

if ΔW = all due to ΔL.

if ΔW is due to Δp:

which means $(L + \Delta L)(p + \Delta p)$

$\boxed{I\sigma = \Delta X^*}$ as X and $\overline{X}^*$

both increase

+ then see σ to firm as a

mat. + as a part of $\underline{\Delta X^*}$??

Material for 2nd part:

e.g. Essential theory

theory dealing with
creation of
I by means of
different I's

Outline becomes something like this:

2a) H. Df of Terms.
b) Essential Theory.

1) Introd to problem.
2) Essential Theory.
3) the 1869-1939 Dev. + 1923-29 if possible
4) Theory continued:
5) Consumption Funct.
6) Int ~~Trade~~ Investment & Nat. Income.
7) Public Policy:

The rise in per capita ~~purpose~~ income over time is due to the concurrent operations of two schematically independent factors: technological change and increase in the quantity of investment. Technological change is a change of kind of ~~most~~ production function being invested into, or rather for: increase in the quantity of investment is a ~~change~~ ~~increase~~ change in the degree to which a production function exists, or rather can be operated *

These two factors operate concurrently - the total of investment (gross investment) at any time is at the ~~highest~~ most efficient technique known to the investor & ~~However only the new investment involves an increase in the total~~ Therefore the total Gross investment involves the application of the new techniques to ~~increase income~~ ~~However~~ Offsetting this will be the quantity of replacement investment, at the old techniques income producing capacity. Therefore the increase in income will be the new techniques ratio of income to quantity of capital times gross investment minus the replaced technique ratio of income to investment times the quantity of replacement investment. This is equal to ~~new~~ net investment times the ~~income~~ new techniques production ratio plus the replacement investment times the difference in the technique's ratios.

Symbolically we have:

ΔY = increase in income

I_T = total investment

I_n = net investment

I_R = replacement investment

σ = ratio of income to investment at the new technique

ξ = " " " " " old "

~~ΔY:~~

1) $I_T = I_n + I_R$

2) $\Delta Y = I_n\sigma + I_R(\sigma - \xi) = I_T\sigma - I_R\xi$

Now if we assume – a truly heroic assumption – that ρ is the ratio of ~~technique~~ income to capital at the old technique:

$$Y = \rho K.$$

$$\Delta Y = I_R + I_r(\sigma - \rho) = I_T^{\sigma} - I_R \rho$$

$$\frac{\Delta Y}{Y} = \frac{I_T \sigma - I_r \rho}{K \rho}$$

Def: $\frac{\Delta Y}{Y} = g_w$ = growth rate.

$$g = \frac{I_T}{K}\frac{\sigma}{\rho} - \frac{I_r}{K}$$

assume g = historic 3%.

use Kuznets figure

393

$$\frac{I}{K} = \frac{10}{300} = \frac{1}{30}$$

$$\frac{I}{K} = \frac{6}{300} = \frac{1}{50}$$

$$\frac{\sigma}{\rho} = \frac{\frac{.03}{100} + \frac{1}{50}}{\frac{1}{30}} = \frac{\frac{5}{100}}{\frac{1}{30}} = 1,5$$

assume $\frac{I_T}{K} = \frac{10}{300}$ (e.g. 3% rate)

$\frac{I_r}{K} =$

Using the table on page 40 of the presidents report we have.

assuming that $\sigma/s = 1.5$.

$$g = \frac{I_r}{K} 1.5 - \frac{I_r}{K}$$; ~~assum~~ Using K as 300 Billions

we have.

39) $g = \frac{10}{300} 1.50 - \frac{7}{300} = \frac{8}{300} = 2.67\%$

44) $g = \frac{\cancel{5}4}{300} \times 1.5 - \frac{9.1}{300} = \frac{6}{300} - \frac{9}{300} = -1\%$

46) $g = \frac{27}{300} 1.5 - \frac{9}{300} = \frac{40\frac{1}{2}}{300} - \frac{9}{30} = \frac{31.5}{300} = 10.5\%$

$\frac{\sigma}{s} = 2$

39) $g = \frac{10}{300} \cdot 2 - \frac{7}{300} = \frac{13}{300} = 4.03$

44) $g = \frac{4}{300} \cdot 2 - \frac{9}{300} = \frac{-1}{300} = -.03\%$

46) $g = \frac{27}{300} \cdot 2 - \frac{9}{300} = \frac{54}{300} - \frac{9}{300} = \frac{45}{300} = 15\%.$

$\sigma/s = 1$

39 $g = \frac{10}{300} - \frac{7}{300} = \frac{3}{300} = 1\%$

44) $g = \frac{4}{300} - \frac{9}{300} = \frac{-5}{300} = -1.66$

46) $g = \frac{27}{300} - \frac{9}{300} = \frac{18}{300} = 6\%$

Growth table:

$\sigma/\rho =$	1	1.5	2.0

gw

σ/ρ	37 $I_T = 10$ $I_R = 7$	44 $I_T = 4$ $I_R = 9$	46 $I_T = 27$ $I_R = 7$
1	1%	-1.66	6%
1.5	2.67%	-1%	10.5%
2.0	4.03%	-.03%	15%.

However this is assuming that all investment is equally productive. If investment abroad is considered to yield $I_x r$, where I_x is the quantity invested abroad and r is the rate of interest on foreign loans the above can be recalculated as follows.

$$I_T = I_n + I_R + I_x$$

$$\Delta Y = I_n \sigma + I_R(\sigma - \rho) + I_x r.$$

$$Y = \rho K + K_x r.$$

$$\frac{\Delta Y}{Y} = g = \frac{I_n \sigma + I_r(\sigma - \rho) + I_K r}{\rho K + K_x r}.$$

$$g = \frac{I_n}{Y}\sigma + \frac{I_r}{Y}(\sigma - \rho) + \frac{I_K}{Y} r$$

V

assume $\sigma = 30\%$

$\cancel{g} = \underline{20\%}$

$r = 10\%$

$I_n = \cancel{\alpha}\, \alpha y = \frac{1}{12} y$

$I_r = \frac{1}{2} I_n$

$\alpha = 1/12$, of which $\frac{1}{2}$ is abroad, $\frac{1}{4}$ each at home non prod.

$\frac{I_n}{y} r = \frac{1}{24} \times \frac{1}{10} = \frac{1}{240} = \frac{4}{960}$

$\frac{I_n}{y} \sigma = \frac{1}{48} \times \frac{3}{10} = \frac{3}{480} = \frac{6}{960}$

$\frac{I_r (\sigma - g)}{y} = \frac{1}{96} \times \frac{1}{10} = \frac{1}{960} = \frac{1}{960}$

$\Sigma = \frac{11}{960} = 1.1$

$\alpha = 1/12$ of which $1/2$ is at home.

$1/4$ each non prod. + eff.

$I_r = 1/2\, I_n$.

$\frac{I_n}{y} \sigma = \frac{1}{24} \times \frac{3}{10} = \frac{3}{240}$

$\frac{I_n}{y} r = \frac{1}{48} \times \frac{1}{10} = \frac{1}{480}$

$\frac{I_r}{y} (\sigma - g) = \frac{1}{48} \times \frac{1}{10} = \frac{1}{480}$

$\frac{8}{480} = 1.5 +$

$I_r = I_n$.

$\underline{\sigma - g = .15}$ $\quad \frac{I_r}{y} (\sigma - g) = \frac{1}{24} \cdot \frac{15}{100} = \frac{1}{160} = 3/480$

$\frac{10}{480} = 2. + \%$

V